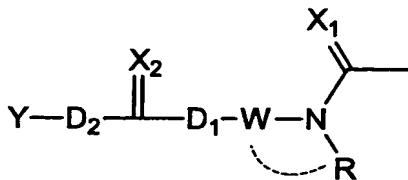


CLAIMS

1. A prodrug compound having, as a modification group to be eliminated from the prodrug, a group represented by the formula:

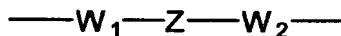


wherein

X₁ and X₂

are each an oxygen atom or a sulfur atom,

W is a chain divalent hydrocarbon group optionally having
10 substituent(s) or a divalent group represented by the
formula:



15 wherein W₁ and W₂ are each a chain divalent hydrocarbon group or a bond, Z is a divalent hydrocarbon ring group optionally having substituent(s), a divalent heterocyclic group optionally having substituent(s), an oxygen atom, SO_n wherein n is 0, 1 or 2, or >N-E wherein E is a hydrogen atom, a hydrocarbon group optionally having substituent(s), a heterocyclic group optionally having substituent(s), a lower alkanoyl group, a lower alkoxy carbonyl group, an aralkyloxycarbonyl group, a thiocarbamoyl group, a lower alkylsulfinyl group, a lower alkylsulfonyl group, a sulfamoyl group, a mono-lower alkylsulfamoyl group, a di-lower alkylsulfamoyl group, an arylsulfamoyl group, an arylsulfinyl group, an arylsulfonyl group, an arylcarbonyl group or a carbamoyl group optionally
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having substituent(s), and when Z is an oxygen atom, SO_n or >N-E, W₁ and W₂ are each a chain divalent hydrocarbon group,

R is a hydrogen atom, a hydrocarbon group optionally having substituent(s) or a heterocyclic group optionally having substituent(s), and

R and W

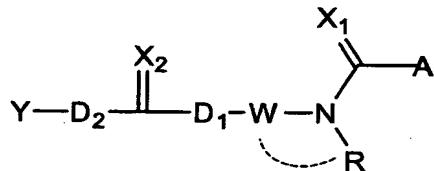
may be bonded to each other when R is not a hydrogen atom,

D₁ and D₂

are each a bond, an oxygen atom, a sulfur atom or >NR₁ wherein R₁ is a hydrogen atom or a hydrocarbon group optionally having substituent(s), except for when both D₁ and D₂ are bonds, and

Y is a hydrocarbon group optionally having substituent(s) or a heterocyclic group optionally having substituent(s).

2. The compound of claim 1, which is a compound represented by
the formula (I):



(I)

wherein A is a group remaining from elimination of hydrogen from a parent compound H-A of a prodrug having a group capable
of bonding to a carbon atom of a modification group
eliminatable from a prodrug, via a carbon-oxygen bond, a
carbon-sulfur bond or a carbon-nitrogen bond, and other
symbols are as defined in claim 1,
or a salt thereof.

3. The compound of claim 1, wherein R is a hydrocarbon group optionally having substituent(s) or a heterocyclic group optionally having substituent(s).

5 4. The compound of claim 1, wherein Z is a divalent hydrocarbon ring group optionally having substituent(s) or a divalent heterocyclic group optionally having substituent(s).

5 5. The compound of claim 1, wherein X₁ and X₂ are each an
10 oxygen atom.

6. The compound of claim 1, wherein D₁ and D₂ are each a bond or an oxygen atom, except for when both D₁ and D₂ are bonds.

15 7. The compound of claim 1, wherein W is a chain divalent hydrocarbon group optionally having substituent(s).

8. The compound of claim 1, wherein W is an ethylene group.

20 9. The compound of claim 1, wherein R is a C₁₋₆ hydrocarbon group optionally having substituent(s).

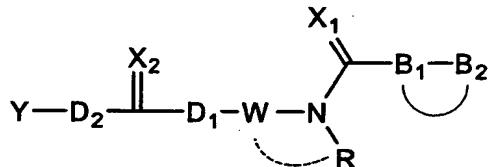
10. The compound of claim 1, wherein Y is a C₁₋₆ hydrocarbon group optionally having substituent(s) or a saturated
25 heterocyclic group optionally having substituent(s), which contains, as ring-constituting atom, 1 to 4 heteroatom(s) selected from oxygen atom, nitrogen atom and sulfur atom.

11. The compound of claim 1, wherein X₁ and X₂ are each an
30 oxygen atom, D₁ and D₂ are each a bond or an oxygen atom except for when both D₁ and D₂ are bonds, W is an ethylene group, R is a C₁₋₆ alkyl group, and Y is a C₁₋₆ hydrocarbon group optionally having substituent(s) or a saturated oxygen-containing

heterocyclic group optionally having substituent(s), which may further contain, as ring-constituting atom, 1 to 3 heteroatom(s) selected from oxygen atom, nitrogen atom and sulfur atom.

5

12. The compound of claim 1, which is a compound represented by the formula (II):



10 wherein -B₁-B₂ is a group remaining from elimination of hydrogen from a pharmaceutical compound H-B₁-B₂ wherein H-B₁- is a hydroxyl group, a thiol group, an amide group or an optionally fused, nitrogen-containing heterocycle optionally having substituent(s), which is capable of bonding to a carbon
15 atom of a modification group eliminatable from a prodrug, via a carbon-oxygen bond, a carbon-sulfur bond or a carbon-nitrogen bond, and other symbols are as defined in claim 1, or a salt thereof.

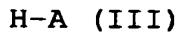
20 13. The compound of claim 12, wherein B₁ is an optionally fused, nitrogen-containing heterocyclic group optionally having substituent(s), which is capable of bonding to a carbon atom of a modification group eliminatable from a prodrug, via a carbon-nitrogen bond.

25 14. The compound of claim 13, wherein the nitrogen-containing heterocyclic group represented by B₁ is a 5 or 6-membered aromatic heterocyclic group containing 1 to 4 nitrogens.

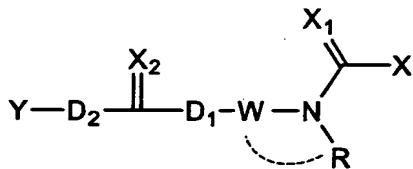
30 15. The compound of claim 14, wherein the aromatic heterocycle

in the 5 or 6-membered aromatic heterocyclic group containing 1 to 4 nitrogens, which is represented by B₁, is imidazole, pyrrole, pyrazole, isoxazole, oxazole, thiazole or triazole.

5 16. (1) A production method of the compound of claim 2, which comprises reacting a pharmaceutical compound having an eliminatable proton (H) represented by the formula (III):



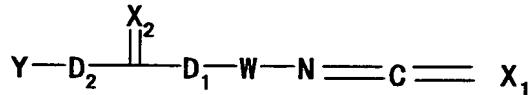
or a salt thereof with a compound represented by the formula
10 (IV):



(IV)

wherein X is a leaving group, and other symbols are as defined in claim 1, or a salt thereof, or a compound of the formula.

15 (V):

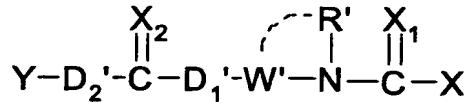


(V)

wherein each symbol is as defined in claim 1, or a salt thereof.

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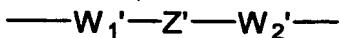
17. A compound represented by the formula (VI):



(VI)

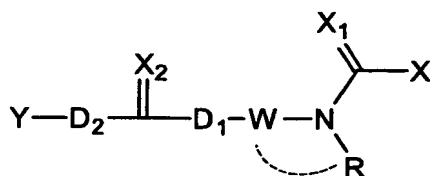
wherein X₁ and X₂ are each an oxygen atom or a sulfur atom, W'
25 is a chain divalent hydrocarbon group having 2 or more carbon atoms and optionally having substituent(s), or a divalent

group represented by the formula:



wherein W_1' and W_2' are each a chain divalent hydrocarbon group or bond, Z' is a divalent hydrocarbon ring group optionally having substituent(s) or a divalent heterocyclic group optionally having substituent(s), R' is a hydrocarbon group optionally having substituent(s) or a heterocyclic group optionally having substituent(s), R' is optionally bonded to W' , D_1' is an oxygen atom or a sulfur atom and D_2' is an oxygen atom, or D_1' is a sulfur atom and D_2' is a bond, Y is a hydrocarbon group optionally having substituent(s) or a heterocyclic group optionally having substituent(s), and X is a leaving group, or a salt thereof.

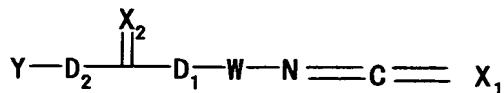
15 18. Use of a compound represented by the formula (IV):



(IV)

wherein X is a leaving group, and other symbols are as defined in claim 1, for the production of a prodrug compound or a salt thereof.

19. Use of a compound of the formula (V):



(V)

25 wherein each symbol is as defined in claim 1, for the production of a prodrug compound or a salt thereof.